

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION TYPE CERTIFICATE DATA SHEET E20NE	TCDS NUMBER E20NE		
	REVISION: 11*		
	DATE: DECEMBER 16, 1999		
	PRATT & WHITNEY CANADA		
	MODELS:		
	PW118	PW123	PW125B
	PW118A	PW123AF	PW126A
	PW118B	PW123B	PW127
	PW119B	PW123C	PW127E
	PW119C	PW123D	PW127F
PW120	PW123E	PW127G	
PW120A	PW124B		
PW121			
PW121A			

Engines of models described herein conforming with this data sheet (which is part of Type Certificate Number E20NE) and other approved data on file with the Federal Aviation Administration, meet the minimum standards for use in certificated aircraft in accordance with pertinent aircraft data sheets and applicable portions of the Federal Aviation Regulations, provided they are installed, operated, and maintained as prescribed by the approved manufacturer's manuals and other approved instructions.

TYPE CERTIFICATE (TC) HOLDER: Pratt & Whitney Canada Inc.
(Formerly Pratt & Whitney of Canada Ltd.)
1000 Marie Victorin
Longueuil, Quebec
Canada J4G 1A1

I. MODELS	PW118	PW118A	PW118B	PW119B	PW119C	PW120	PW120A	PW121
TYPE	A three spool free-turbine turboprop propulsion engine incorporating two centrifugal compressors, each driven by independent axial turbines, a reverse flow annular combustor, and a two-stage power turbine that drives a gearbox.							
RATINGS (SEE NOTES 4 & 16)								
Maximum takeoff (5 min.), at sea level								
Equivalent shaft horsepower	---	---	---	2,282	--	2,100	--	2,252
Shaft horsepower	---	---	---	2,180	--	2,000	--	2,150
Thrust, pounds	---	---	---	256	--	250	--	255
Output, RPM	---	---	---	1,339	--	1,212	--	--
Normal takeoff at sea level								
Equivalent shaft horsepower	1,892	1,893	1,892	1,941	--	1,892	--	2,044
Shaft horsepower	1,800	--	--	1,851	--	1,800	--	1,950
Thrust, pounds	230	231	230	225	--	230	--	235
Output, RPM	1,300	--	--	1,339	--	1,212	--	--
Maximum continuous at sea level								
Equivalent shaft horsepower	1,892	1,893	--	1,941	--	1,787	1,892	2,044
Shaft horsepower	1,800	--	230	1,851	--	1,700	1,800	1,950
Thrust, pounds	230	231	--	225	--	217	230	235
Output, RPM	1,300	--	--	1,339	--	1,212	--	--

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LEGEND: "-" INDICATES "SAME AS PRECEDING MODEL"
"---" NOT APPLICABLE
NOTICE: ALL PAGES ARE REFORMATED. SIGNIFICANT CHANGES,
IF ANY, ARE BLACK-LINED IN THE LEFT MARGIN.

I. MODELS (Continued)	PW121A	PW123	PW124B	PW125B	PW126A	PW127	PW127E
RATINGS (See NOTES 4 & 16)							
Maximum takeoff (5 min.), at sea level							
Equivalent shaft horsepower	2,304	2,502	2,522	2,626	2,795	2,880	2,516
Shaft horsepower	2,200	2,380	2,400	2,500	2,662	2,750	2,400
Thrust, pounds	260	304	305	314	333	325	289
Output, RPM	1,212	--	--	--	--	--	--
Normal takeoff at sea level							
Equivalent shaft horsepower	2,075	2,253	2,272	2,367	2,518	2,594	2,266
Shaft horsepower	1,980	2,142	2,160	2,250	2,396	2,475	2,160
Thrust, pounds	238	279	--	290	306	297	265
Output, RPM	1,212	--	--	--	--	--	--
Maximum continuous at sea Level							
Equivalent shaft horsepower	1,992	2,261	2,522	2,261	2,493	2,619	2,516
Shaft horsepower	1,900	2,150	2,400	2,150	2,372	2,500	2,400
Thrust, pounds	230	280	305	280	303	299	289
Output, RPM	1,212	--	--	--	--	--	--

I. MODELS (Continued)	PW123B	PW123C	PW123D	PW123E	PW127F	PW123AF	PW127G
RATINGS (See NOTES 4 & 16)							
Maximum takeoff (5 min.), at sea level							
Equivalent shaft horsepower	2,626	2,262	--	2,502	2,880	---	3,058
Shaft horsepower	2,500	2,150	--	2,380	2,750	---	2,920
Thrust, pounds	315	280	--	304	325	---	344
Output, RPM	1,212	1,212	--	--	--	---	1,212
Normal takeoff at sea level							
Equivalent shaft horsepower	2,378	2,054	--	2,253	2,593	2,502	2,771
Shaft horsepower	2,261	1,950	--	2,142	2,475	2,380	2,645
Thrust, pounds	291	258	--	279	297	304	315
Output, RPM	1,212	--	--	--	--	--	--
Maximum continuous at sea Level							
Equivalent shaft horsepower	2,262	2,054	--	2,261	2,619	2,261	3,058
Shaft horsepower	2,150	1,950	--	2,150	2,500	2,150	2,920
Thrust, pounds	280	258	--	280	299	280	344
Output, RPM	1,212	--	--	--	--	--	--

FUEL

See NOTE 19.

OIL

See NOTE 19.

PRINCIPAL DIMENSIONS

Refer to Installation Drawing in approved Installation Manual

DRY WEIGHT, POUNDS

INCLUDING ESSENTIAL ENGINE ACCESSORIES

PW118 / 118A / PW118B	885
PW119B / PW119C	887
PW120 / 120A / 121 / 121A	957
PW123 / 123B / 123C / 123D / 123	1,000
PW123AF	1,030
PW124B / 125B / 126A / 127 / 127E / 127F / 127G	1,060

CG LOCATION

Refer to Installation Drawing in approved Installation Manual

CERTIFICATION BASIS

FAR Part 33, effective February 1, 1965, as amended by 33-1 to 33-9, inclusive, including Canadian Special Requirements as contained in Transport Canada letter to Pratt & Whitney Canada, dated September 20, 1983, which is equivalent to FAR 33, Amendment 10 for the following paragraphs: 33.7, 33.14, 33.17, 33.19, 33.23, 33.27, 33.77, 33.87, 33.88, 33.90 and 33.94.

Type Certificate E20NE issued/revised

MODEL	DATE OF APPLICATION	DATE TC ISSUED OR REVISED
PW115	07/17/81	11/21/84*
PW118	11/13/86	08/06/86
PW118A	08/14/87	11/13/87
PW118B	03/05/96	03/08/96
PW119B	05/17/93	06/03/93
PW119C	02/08/96	03/08/96
PW120	07/17/81	11/21/84
PW120A	07/17/81	11/21/84
PW121	08/14/87	03/31/88
PW121A	06/05/95	09/08/95
PW123	08/14/87	04/29/88
PW123B	05/19/95	05/24/95
PW123C	05/19/95	05/24/95
PW123D	05/19/95	05/24/95
PW123E	05/19/95	05/24/95
PW124	08/21/84	04/29/88*
PW124A	08/14/87	04/29/88*
PW124B	10/02/89	02/15/90
PW125B	08/14/87	04/29/88
PW126A	07/07/89	11/27/89
PW127	09/16/92	11/25/92
PW127E	07/20/95	09/08/95
PW127F	09/18/96	10/25/96
PW123AF	04/18/97	05/17/99
PW127G	08/10/99	12/16/99

*Engine models PW115, PW124, and PW124A were deleted from Type Certificate E20NE on June 23, 1992. The above were deleted at the request of the type certificate holder. No engines of these models are in existence, nor is there intent to manufacture or convert to these models.

IMPORT REQUIREMENTS

To be considered for installation on United States registered aircraft, each engine to be exported to the United States shall be accompanied by a certificate of airworthiness for export, or certifying statement endorsed by the exporting cognizant civil airworthiness authority, which contains the following language:

- (1) This engine conforms to its United States type design (Type Certificate Number E20NE) and is in a condition for safe operation.
- (2) This engine has been subjected by the manufacturer to a final operational check and is in a proper state of airworthiness.

Reference FAR Section 21.500, which provides for the airworthiness acceptance of aircraft engines or propellers manufactured outside of the United States for which a United States type certificate has been issued.

Additional guidance is contained in FAA Advisory Circular 21-23, Airworthiness Certification of Civil Aircraft, Engines, Propellers, and Related Products, imported into the United States.

NOTES

I. MODELS	PW118	PW118A	PW118B	PW119B	PW119C	PW120	PW120A	PW121
LIMITATIONS (See NOTES 13 & 25 as applicable)								
NOTE 1: (See NOTE 24)	MAXIMUM PERMISSIBLE ENGINE OPERATION SPEEDS (RPM)							
Output shaft								
Maximum takeoff	---	---	---	1,339	--	1,212	--	--
Normal takeoff	1,300	--	--	1,339	--	1,212	--	--
Maximum continuous	1,300	--	--	1,339	--	1,212	--	--
Transient (20 sec.)	1,430	--	--	1,430	--	1,320	--	--
Transient (5 sec.)	---	---	---	---	---	1,440	--	--
High pressure rotor								
Maximum takeoff	---	---	---	34,200	--	34,350	--	--
Normal takeoff	33,300	33,966	--	34,200	--	*	*	*
Maximum continuous	33,300	33,966	--	34,200	--	34,150	--	--
Transient (20 sec.)	33,966	--	--	34,700	--	34,675	--	--
Low pressure rotor								
Maximum takeoff	---	---	---	28,900	--	---**	---**	---**
Normal takeoff	27,700	28,808	--	28,900	--	---	---	---
Maximum continuous	27,700	28,808	--	28,900	--	---	---	---
Transient (20 sec.)	28,531	28,808	--	29,340	--	---	---	---
	* See NOTE 20; ** See NOTE 25							
NOTE 2:	MAXIMUM PERMISSIBLE TEMPERATURES (DEGREES FARENHEIT)							
Interturbine temperature (ITT)								
Maximum takeoff	---	---	---	1,472	--	1501	--	--
Normal takeoff	1,500	--	--	1,472	--	1,445	--	--
Maximum continuous	1,472	--	--	1,472	--	--	--	--
Starting (5 sec.)	1,742	--	--	1,742	--	--	--	--
Transient (20 sec.)	1,562	--	--	1,562	--	--	--	--
Air inlet temperature for rated power								
Maximum takeoff	---	---	---	88	97	82	--	78
Normal takeoff	91	108	113	118	--	82	--	78
Maximum continuous	91	108	--	118	127	91	--	82

I. MODELS	PW118	PW118A	PW118B	PW119B	PW119C	PW120	PW120A	PW121
NOTE 3:	MAXIMUM PERMISSIBLE OUTPUT TORQUE (FOOT-POUNDS)							
Maximum continuous	7,272	--	--	9,090	--	8,535*	--*	--*
Maximum takeoff	---	---	---	9,090	--	9,850*	--*	--*
Normal takeoff	8,000	--	--	---	---	8,535*	--*	--*
Transient (20 sec.)	9,270	--	--	10,570	--	11,000*	--*	--*

*For PW120, PW120A and PW121 engines incorporating either SB 20316 or SB 20380, the transient limit is 12,750 ft-lbs., the maximum takeoff limit is 11,000 ft-lbs., the maximum continuous and normal takeoff limit is 10,000 ft-lbs.

I. MODELS (Continued)	PW121A	PW123	PW124B	PW125B	PW126A	PW127	PW127E
LIMITATIONS (See NOTES 13 & 25 as applicable)							
NOTE 1: (See NOTE 24)	MAXIMUM PERMISSIBLE ENGINE OPERATION SPEEDS (RPM)						
Output shaft							
Maximum takeoff	1,212	--	--	--	1,212	--	1,212
Normal takeoff	1,212	--	--	--	1,212	--	1,212
Maximum continuous	1,212	--	--	--	1,212	--	1,212
Transient (20 sec.)	1,320	--	1,380	--	--	1,296	--
Transient (5 sec.)	1,440	---	---	---	---	1,440	--
High pressure rotor							
Maximum takeoff	34,380	34,200	--	--	34,190	34,360	34,360
Normal takeoff	33,975	33,633	--	33,750	33,670	33,930	33,930
Maximum continuous	34,160	34,200	--	--	34,190	34,360	34,360
Transient (20 sec.)	34,675	34,550	--	--	34,500	35,440	34,730
Low pressure rotor							
Maximum takeoff	---**	28,800	--	--	28,900	28,870	--
Normal takeoff	---	28,170	--	28,140	28,280	28,090	--
Maximum continuous	---	28,800	--	--	28,900	28,870	--
Transient (20 sec.)	---	28,900	--	--	28,900	29,575	--
	*See NOTE 20; **See NOTE 25						
NOTE 2: (See NOTE 22)	MAXIMUM PERMISSIBLE TEMPERATURES (DEGREES FARENHEIT)						
Interturbine temperature (ITT)							
Maximum takeoff	1,501	1,472	--	--	--	--	--
Normal takeoff	1,456	1,409	--	--	--	--	--
Maximum continuous	1,472	--	--	--	--	--	--
Starting (5 sec.)	1,742	--	--	--	--	--	--
Transient (20 sec.)	1,562	1,544	--	--	--	--	--
Air inlet temperature for rated power							
Maximum takeoff	77	95	94	86	84	89	113
Normal takeoff	77	95	94	86	84	89	113
Maximum continuous	86	113	94	113	105	106	113
NOTE 3:	MAXIMUM PERMISSIBLE OUTPUT TORQUE (FOOT-POUNDS)						
Maximum continuous	10,000	--	10,766	9,410	11,650	12,800	12,800
Maximum takeoff	11,000	--	11,170	10,965	11,650	12,800	12,800
Normal takeoff	10,000	--	9,454	9,890	11,650	12,800	--
Transient (20 sec.)	12,750	--	13,080	14,300	13,080	13,200	14,440

I. MODELS (Continued)	PW123B	PW123C	PW123D	PW123E	PW127F	PW123AF	PW127G
LIMITATIONS (See NOTES 13 & 25 as applicable)							
NOTE 1: (See NOTE 24)	MAXIMUM PERMISSIBLE ENGINE OPERATION SPEEDS (RPM)						
Output shaft							
Maximum takeoff	1,212	--	--	--	--	---	1,212
Normal takeoff	1,212	--	--	--	--	--	--
Maximum continuous	1,212	--	--	--	--	--	--
Transient (20 sec.)	1,320	--	--	--	1,296	1,320	---
Transient (5 sec.)	---	---	---	---	1,440	---	1,440
High pressure rotor							
Maximum takeoff	34,200	--	--	--	34,360	---	34,530
Normal takeoff	33,633	--	--	*	33,930	34,200	34,050
Maximum continuous	34,200	--	--	--	34,360	34,200	34,530
Transient (20 sec.)	34,550	--	--	--	35,440	34,550	35,440
Low pressure rotor							
Maximum takeoff	28,800	--	--	--	28,870	---	28,990
Normal takeoff	28,270	--	--	28,170	28,090	28,800	28,500
Maximum continuous	28,800	--	--	--	28,870	28,800	28,990
Transient (20 sec.)	28,900	--	--	--	29,575	28,900	29,575

*See NOTE 20

I. MODELS (Continued)	PW123B	PW123C	PW123D	PW123E	PW127F	PW123AF	PW127G
NOTE 2: (See NOTE 22)	MAXIMUM PERMISSIBLE TEMPERATURES (DEGREES FARENHEIT)						
Interturbine temperature (ITT)							
Maximum takeoff	1,472	--	--	--	--	---	1,472
Normal takeoff	1,409	1,418	--	1,409	--	1,472	1,409
Maximum continuous	1,472	--	--	--	--	--	--
Starting (5 sec.)	1,742	--	--	--	--	--	--
Transient (20 sec.)	1,544	--	--	--	--	--	--
Air inlet temperature for rated power							
Maximum takeoff	86	78	113	105	95	---	95
Normal takeoff	86	78	113	105	95	--	--
Maximum continuous	113	94	127	113	112	113	95
NOTE 3:	MAXIMUM PERMISSIBLE OUTPUT TORQUE (FOOT-POUNDS)						
Maximum continuous	10,000	10,040	--	10,000	12,800	10,000	13,000
Maximum takeoff	11,197	10,040	--	11,000	12,800	---	13,000
Normal takeoff	10,000	---	---	10,000	12,800	11,000	13,000
Transient (20 sec.)	12,750	--	--	--	14,440	12,750	14,440

NOTE 4.

The engine ratings are based on dry sea level static ICAO standard atmospheric conditions. No external accessory loads and no air bleed. The quoted ratings are obtainable on a test stand with the specified fuel and oil, without intake ducting and utilizing the exhaust port and intake defined in the approved Installation Manual.

NOTE 5.

FUEL & OIL PRESSURE LIMITS

Fuel:

Fuel pressure and temperature limitations are defined in the applicable Installation Manual.

Oil:

Oil pressure and temperature limitations are defined in the applicable Installation Manual.

NOTE 6.

ACCESSORY DRIVE PROVISIONS

DRIVE	MAXIMUM TORQUE (IN-LB)			SPEED RATIO	ROTATION
	CONTINUOUS	STATIC	OVERLOAD		
FOR MODELS PW118/118A/118B/ 119B/119C:					
Starter/Generator:					
Starting Mode	407 (4)	1,600	800	.36017 (1)	CW
Generating Mode	210 (7)	1,600	340	.36017 (1)	CW
AC Generator	132	1,470	320	10.275 (2)	CW
Hydraulic Pump	180	1,380	200	5.8714 (2)	CW
O/S Governor	37	---	56.7	4.1515 (2)	CCW
FOR MODELS: PW120/120A/121/ 121A/123/123AF/123B/123C/123D/123E:					
Starter/Generator:					
Starting Mode	407 (4)	1,600	800	.36017 (1)	CW
Generating Mode	210 (7)	1,600	340	.36017 (1)	CW
AC Generator	250 (8)	2,000	440	12.1949 (3)	CW
Hydraulic Pump	180	1,300	200	6.2623 (3)	CW
O/S Governor	37	---	56.7	4.5333 (3)	CCW
FOR MODELS PW124B/125B/126A/127/127E/ 127F/127G:					
Starter/Generator:					
Starting Mode	407 (4)	1,800	800 (6)	.36017 (1)	CW
Generating Mode	210	1,800	340	.36017 (1)	CW
AC Generator (11):	380	2,500	550 (6)	12.212 (3)	CW
Integral Drive Generator (IDG) (9/12)					
100% Speed	550	3,650	619 (5) 878 (6)	7.073 (3)	CW
55.3% Speed	958	3,650	1,078 (5) 1,450 (6)	3.911 (3)	CW
Hydraulic Pump (10):					
PW125B Model	180	1,500	400	5.017 (3)	CW
PW126A Model	180	1,500	400	3.504 (3)	CW
O/S Governor	37	---	56.7	4.500 (3)	CCW
NOTES: (1) Gas generator speed (Ng) 100% = 33,300 RPM (2) Output Shaft Speed (Np) 100% = 1,300 RPM (3) Output Shaft Speed (Np) 100% = 1,200 RPM (4) Not to exceed 60 seconds (5) Not to exceed 5 minutes (6) Not to exceed 5 seconds (7) Not to exceed 24 shp (8) Not to exceed 50.8 shp (9) IDG must be used with hydraulic pump (10) Note used on PW124B/127 models (11) Not used on PW125B model (12) Used on PW125B model only					

- NOTE 7. Recommended maintenance intervals are published in the scheduled inspection section of the engine manual or maintenance manual, as applicable.
- NOTE 8. Life limits for critical rotating components are published in the airworthiness limitations section of the engine manual or airworthiness limitations manual, as applicable.
- NOTE 9. MAINTENANCE MANUALS Engines may not be operated in an aircraft with a Standard Certificate of Airworthiness until the Instructions for Continued Airworthiness are completed and accepted.
- NOTE 10. OVERHAUL MANUALS Until the Overhaul Manuals are available, all overhauls must be performed by PWC to new engine standards.
- NOTE 11. BLEED AIR
- Maximum external (HP): 10% of inlet airflow up to a maximum of 33 lb/min (15 kg/min)
- Maximum external (LP)
PW118 / 118A / 118B /
120 / 120A / 121 /
121A: 8% of inlet airflow
- PW119B/ 119C / 123 /
123AF / 123B / 123C /
123D / 123E / 124B /
125B / 126A / 127 /
127E / 127F / 127G: 10% of inlet airflow
- Maximum during start: Bleed flow equivalent to that obtained from 0.2" (0.5 cm) diameter orifice at the engine bleed port.
- NOTE 12. The PW100 series engines meet the requirements of FAR 33.68 for operation in icing conditions as defined in FAR 25, Appendix C, when the intake system conforms with the Pratt & Whitney Canada Installation Manual instructions for inertial separation of snow and icing particles.
- NOTE 13. The PW120, PW120A, PW121, PW121A, PW123, PW123B, PW123C, PW123D, PW123E, PW124B, PW125B, PW126A, PW127, PW127E, PW127F and PW127G models include provisions for automatic power increase from Normal Takeoff Power to Maximum Takeoff Power. The limitations stated for Normal Takeoff are to ensure that the Maximum Takeoff limitations are not exceeded in the event of an automatic power increase to Maximum Takeoff power.
- NOTE 14. All models meet the fuel venting requirements of SFAR 27, effective February 1, 1974, as amended by Amendments SFAR 27-1 through 27-5, and FAR 34.
- NOTE 15. The electronic engine control system (automatic feather control system on PW123AF) meets the lightning protection requirements specified in the SAE AE4L committee report. For specific capabilities and installation requirements refer to Installation Manual.
- NOTE 16. For all engine models takeoff ratings that are nominally limited to 5 minutes duration may be used for up to 10 minutes for OEI operations without adverse effects upon engine airworthiness. Such operations are anticipated on an infrequent basis (as engine failure at take-off events are uncommon) and no limits or special inspections have been imposed.
- NOTE 17. For PW118, PW120, PW120A, and PW121 models the software contained in the Electronic Control Unit has been developed, documented and tested in accordance with the provisions of the critical category of RTCA/DO-178A November 1981.
- NOTE 18. For the PW118A, PW118B, PW119B, PW119C, PW121A, PW123, PW123B, PW123C, PW123D, PW123E, PW124B, PW125B, PW126A, PW127, PW127E, PW127F and PW127G models, the software contained in the Electronic Control Unit has been designed, developed, documented and tested in accordance with the provisions of Critical Category Level 1 of RTCA/DO-178A, March 1985.

- NOTE 19. Approved fuel types are those conforming to current PWC specification CPW 204 and later revisions. Refer to Maintenance Manual Chapter 72-00-00 for a listing of approved fuels and oils.
- NOTE 20. For the PW120, PW120A, PW121, and 123E models, the normal takeoff high pressure rotor speed limitation is variable with ambient temperature to ensure the maximum spool speed is not exceeded in the event of an automatic power increase to maximum takeoff. Refer to the Installation Manual for the normal takeoff limit.
- NOTE 21. Engines acceptable with both 6 blade and 4 blade propeller installations are: PW118, PW118A, PW118B, PW119B, PW119C, PW120, PW120A, PW121, PW121A, PW123, PW123AF, PW123B, PW123C, PW123D, PW123E, PW124B, PW127, PW127E and PW127F. Engines acceptable with 6 blade propeller installation only are: PW125B, PW126A and PW127G.
- NOTE 22. Normal Takeoff ITT limitation is variable with ambient temperature for the following models: PW121A, PW123, PW123B, PW123C, PW123D, PW123E, PW124B, PW125B, PW126A, PW127, PW127E, PW127F and PW127G. Refer to the applicable engine installation manual for the variable ITT limit.
- NOTE 23. Service Bulletins, structural repair manuals, vendor manuals, aircraft flight manuals, and overhaul and maintenance manuals, which contain a statement that the document is Transport Canada approved, are accepted by the FAA and are considered FAA approved. These approvals pertain to the type design only.
- NOTE 24. All PW100 series models have been approved with a propeller overspeed capability to cater to propeller control malfunctions. The Engine Installation Manual operating limits define the overspeed limit.
- NOTE 25. The speed relationship between the low compressor spool and the high compressor spool is controlled by new engine acceptance procedures and the Overhaul Manual for the PW120, PW120A, and PW121 and PW121A.

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